

Calculation of Annual Eto Emissions

1. Acid Scrubber - Data from 1/9/20 stack test

Mass Eto exiting scrubber during first
evacuation = 0.00044 pounds

Total of 7 evacuations per cycle

Total of 135 cycles per year

$$T = 0.00044 \times 7 \times 135 \\ = 0.42 \text{ pounds/year}$$

2. Dry Bed Reactor

Exhaust Rate = 2000 cfm

Eto Concentration = 0.4 ppm

Molar Volume = 385 cf / # mole

Eto MV = 44.05 # / # mole

$$E_{yr} = 2000 \frac{\text{cf}}{\text{min}} \times 1440 \frac{\text{min}}{\text{day}} \times 1 \frac{\text{# mole}}{385 \text{ cf}} \times \frac{44.05 \text{ #}}{\text{# mole}} \times \frac{0.4 \text{ ppm}}{10^6 \text{ ppm}} \times 135 \text{ day}$$

$$= 17.8 \text{ #/year}$$

3. GEV annual Eto Emissions

GEV exhaust = 721 dscfm

Eto concentration = 88 ppm - average

GEV operations/cycle = 30 minutes

135 cycles per year

$$\text{E} = \frac{88 \text{ ppm}}{10^6 \text{ ppm}} \times \frac{721 \text{ ft}^3}{\text{min}} \times \frac{1 \text{ #mole}}{385 \text{ ft}^3} \times \frac{44.05 \text{ #}}{\text{#mole}} \times \frac{30 \text{ min}}{\text{cycle}} \times \frac{135 \text{ cycle}}{\text{yr}}$$
$$= 29.4 \text{ #/yr}$$